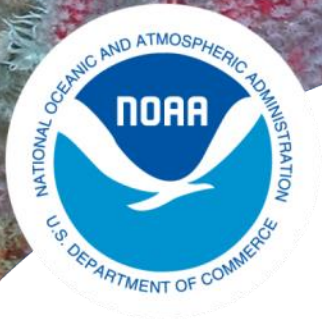
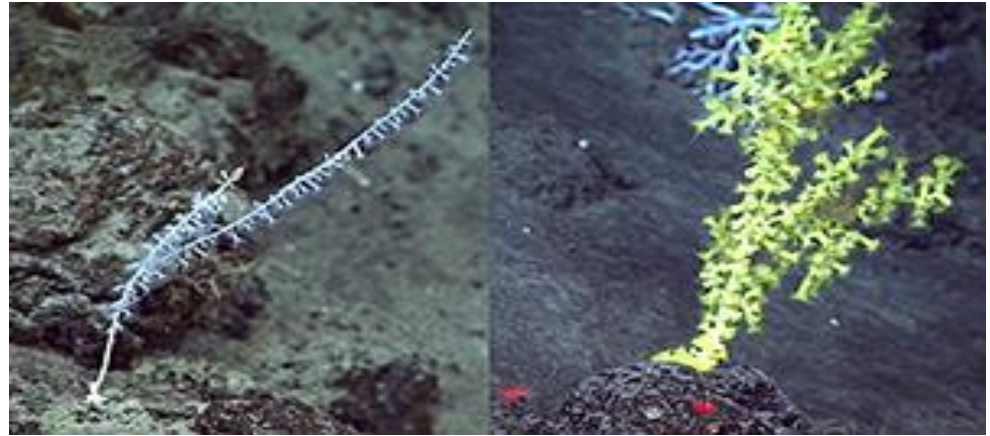


# Pacific Islands Regional Initiative 2015–2017

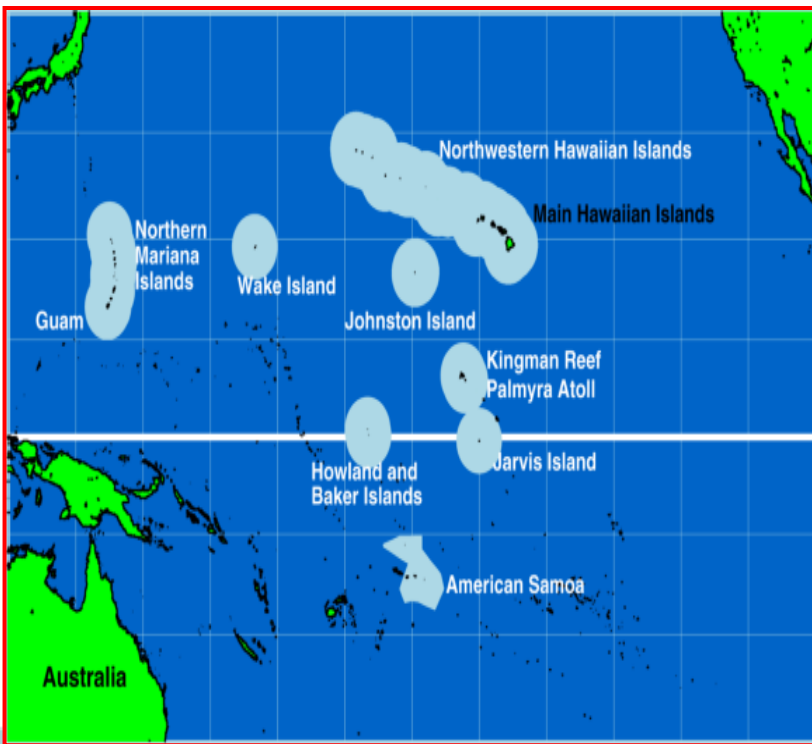


**NOAA**  
**FISHERIES**



**Isididae**

***Kulamanamana  
haumea* (Gold coral )**



***Aldrovandia* species, 1412-1560 m, NWHI**

# Objectives of the PI Initiative

## Established 3-year Research Plan at 2014 Workshop

- What information can be derived from existing data sets?
- What are the biogeographic patterns at the basin-scale?
- What are the depth distributions of corals and sponges, especially between 500 and 4000 m?
- What are the environmental factors that affect the distributions of deep-sea corals and sponges?
- What are the life history traits, genetic factors, and growth characteristics that determine how long it takes a deep-sea coral or sponge community to recover from disturbance?

# Pacific Islands Research Projects and Results

- Compile and synthesize existing data from deep-sea coral and sponge observations in the U.S. Pacific Islands.
  - Successes include tremendous progress by UH partners compiling, synthesizing and cataloging both existing HURL data and new EX video and still imagery
- Identify and map areas of high abundance and diversity, and the vertical distribution, of deep-sea corals and sponges in the U.S. Pacific Islands.
  - Successes made possible through partnership with OER include mapping ~ 294,000 sq km of seafloor, 99 ROV dives using the Deep Discoverer , identification and mapping of 30 areas of high coral and sponge abundance and diversity (at depths ranging from 200 to 6000 m), and collection of more than 180 biological voucher samples, including dozens of potential new species and an abundance of new records for the region with several significant range extensions.
- Compile, manage, document and format data to national program standards for submittal into national deep-sea coral and sponge database, and create geospatial database that resides in the PIFSC.
  - QC data have been submitted into national deep-sea coral and sponge database, and into a geospatial database that resides in the PIFSC. Raw data available through OER.

# Pacific Islands Research Projects & Results (cont)

- Examine the population ecology, growth rates, genetics and distribution of black corals in Hawaii. Set up monitoring sites to sample and study growth and post-harvest recovery rates of SCUBA-accessible black coral populations in the MHI. Survey SCUBA-accessible black coral populations in American Samoa to determine taxonomy and distribution of black corals in American Samoa.
- **Successes - Daniel Wagner and colleagues at the University of Hawaii have continued their work on black coral growth and recovery rates, genetics and distribution in Hawaii, and initiated surveys of SCUBA-accessible black coral populations in Am Samoa to determine taxonomy and distribution.**

# Pacific Islands Research Projects & Results (cont)

- Estimate precious coral community recruitment rates in new habitat (e.g. lava flow).
  - Sam Kahng and his colleagues at Hawaii Pacific University have used HURL and EX ROV surveys to estimate precious coral community recruitment rates in new habitat (e.g. lava flow).
- Examine the benthic and oceanographic conditions that promote development of deep-sea coral and sponge ecosystems. Collect data on temperature, currents, pH, etc. from deployed instruments in known precious coral beds and use analysis of collected coral precious skeletons as a record of environmental change.
  - Frank Parrish used HURL and EX ROV to recover and deploy instruments that measured the benthic and oceanographic conditions of deep-sea coral in the Hawaiian Islands and nearby seamounts. Amy Baco-Taylor and Brendan Roark deployed and successfully recovered a deep oceanographic lander in the NWHI.



# DSCRTP Operations 2015-2016 Challenges

- Hundreds of hours of video yet to be examined, annotated and synthesized
- Great distances between major island chains means many transit days which add to both operating expenses, staff time commitments, and lost ROV days
- The *Okeanos Explorer* model of operation was designed primarily for exploration and discovery, not statistically-sound survey and/or comprehensive sampling operations
- Compromises were necessary between scientists wanting to cover longer survey tracks and videographers wanting to do more detailed imaging
- Biological sampling was limited by time on bottom, protected area restrictions, sampling system and storage capacity, and protocols adopted by scientific team
- Key members of the research team have relocated, so their work on black coral life history may not be completed as originally planned
- Limited and/or uncertain access to specialized research platforms and other equipment has made life history projects less viable
- Project funded for 3 years only, meaning little chance for repetitive surveys, and very superficial visits to many areas

# Standardized Data Products

- Compiled and organized all of the dive and sample summary table deliverables, including linking the tables to the dive reports and sample images.
- Created GIS layers and data services for all dive locations, dive tracks, sample locations, ship tracks, and bathymetry data collection. These data are currently only accessible on local GIS databases due to server issues, but will be universally available soon
- Created ArcGIS Online story map that provides background info on CAPSTONE and interactive maps for all field activities. These include links to sample photos, dive highlight videos and dive summary reports. As with the data services, the story map is not fully functioning until the server is restored.
- 26 ROV dives from 2015 Have been completely annotated. QAQC of 24 of the 26 dive datasets is complete, and will be forwarded to DSC RTP for database inclusion after final review.
- Data format, staffing, training, and field commitment issues have been resolved so more rapid progress on annotation should be expected during the coming months.

# Initiative Operation

- A very successful aspect of the Pacific Islands initiative has been the strong partnerships developed not only among line offices of NOAA, but with multiple educational institutions and other government agencies
- An inherent challenge is getting access to program funds as early as possible for flexibility in allocations, contracts and grant development



# Operations

CRUISE	LOCATION	MULTIBEAM MAPPING	DIVES			REPORTS	
			NUMBER	ANNOTATION	SUMMARY	CRUISE	SITE CHAR
EX1504L2	NW Hawaiian Islands	29923 km <sup>2</sup>	18 ROV	Y	Y	Y	Y
EX1504L3	MHI & Geologist Seamounts	6400 km <sup>2</sup>	6 ROV	Y	Y	Y	Y
EX1504L4	MHI & Johnston Atoll	18000 km <sup>2</sup>	13 ROV	N	Y	Y	Y
EX1603	NW Hawaiian Islands	38690 km <sup>2</sup>	8 ROV	Y	Y	Y	Y
EX1605L1	Marianas	19675 km <sup>2</sup>	19 ROV	N	Y	N	N
EX1605L3	Marianas	27764 km <sup>2</sup>	22 ROV	N	Y	N	N
EX1606	Wake Island	33000 km <sup>2</sup>	13 ROV	N	Y	Y	N
<b>TOTAL</b>	<b>11 cruises*</b>	<b>293919 km<sup>2</sup>*</b>	<b>99 ROV</b>				



# Conclusions

- Many objectives have been met and even exceeded. We are particularly proud that we have been able to meet all of the internal deadlines for contributions to the national DSCRTP database, and been able to generate multiple refereed publications
- ROV dives have explored greater geographic ranges and depth gradients than planned for during 2014 workshop, with high resolution video, bathymetry and backscatter data collected for all Pacific Island regions under US jurisdiction
- Deep bottom instruments have been recovered with data intact to provide an understanding of multiyear oceanographic conditions for precious corals growth and recruitment
- While many years of analyses are still necessary, a better understanding of biophysical requirements for coral growth and recruitment and biogeographic distribution of deep water corals will be forthcoming

# Future Plans and Priorities

- 2017 – Exploring deep slopes and seamounts in the U.S. Pacific Remote Islands and American Samoa

